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10/762,120	01/21/2004	Paul A. Hosier	D/A2019	3957

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EXAMINER

CUTLER, ALBERT H

ART UNIT	PAPER NUMBER
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2622

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/762,120	Applicant(s) HOSIER ET AL.	
	Examiner Albert H. Cutler	Art Unit 2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 July 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 8-10 and 13-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 8-10 and 13-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This office action is responsive to communication filed on July 25, 2007. Claims 8-10 and 13-18 are pending in the application.

Response to Arguments

2. Applicant's arguments with respect to claims 8 and 15 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 8-10, 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moraillon(US 4,553,159) in view of Stark(US 2002/0186312).

Consider claim 8, Moraillon teaches:

A method of operating an imaging apparatus(column 2, line 42 through column 3, line 7, see figure 3), the apparatus(figure 3) including a plurality of groups of photosensors(See figure 3 for a plurality of groups of photosensors. Each group contains two green photosensors and either two red photosensors or two blue photosensors.), wherein a first subset of groups of photosensors(i.e. the green photosensors) is substantially evenly distributed along a linear array(see figure 3) and is substantially interleaved with the second subset of groups of photosensors(i.e. the red and blue photosensors) along the linear array(See figure 3.), a first output line(12S), and a second output line(13S), comprising:

in a second mode, for each of a plurality of groups of photosensors, transferring signals from a first photosensor(i.e. a first green photosensor) in the group to the first output line(12S), and transferring signals from a second photosensor(i.e. the red or blue photosensor horizontally adjacent the green photosensor) in the group to the second output line(13S, column 2, line 61 through column 3, line 7.);

wherein, in the second mode, signals from adjacent photosensors or groups of photosensors on the first and second output lines overlap over time(column 2, lines 61-69).

Moraillon teaches that the imaging apparatus is arranged with two adjacent vertical photosensors of a group having the same color(see figure 3). However, Moraillon does not explicitly teach in a first mode, transferring signals from a first subset of groups of photosensors to the first output line, and transferring signals from a second subset of groups of photosensors to the second output line.

Stark is similar to Moraillon in that Stark teaches a method of operating an imaging apparatus (figure 3, figure 6, paragraphs 0025, 0029), the apparatus including a plurality of groups of photosensors (See figure 4C, the image sensor can be broken down into square groups of four photosensors. See paragraphs 0039-0040, 0085-0087), a first output line (See figures 4A and 4B, paragraphs 0085-0087, each group of four photosensors can be broken into subsets of two photosensors. Signals from two photosensors (i.e. a first subset), Q3 and Q4, are read out to a single sense amplifier (SA1, see figure 2) on a single output line (i.e. a first output line). See figure 2, paragraphs 0056-0057.), and a second output line (Just like the first subset, additional subsets (i.e. second, third, etc.) are read out in the same fashion with two photosensors read out on the same line (i.e. second, third, etc. output lines). See figures 4A and 4B, which illustrate the two-photosensor subsets. Reading out an entire frame in this way results in halving the entire frame readout time, paragraph 0057.).

However, in addition to the teachings of Moraillon, Stark teaches that in a first mode (Low Resolution Mode, paragraphs 0056-0057), transferring signals from a first subset of groups of photosensors (i.e. two vertical photosensors) to the first output line, and transferring signals from a second subset of groups of photosensors (i.e. two other vertical photosensors of the group) to the second output line (paragraph 0085, figure 4A).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to have the imaging apparatus taught by Moraillon include a first mode for transferring signals from the first subset of groups of photosensors to the

first output line, and transferring signals from the second subset of groups of photosensors to the second output line as taught by Stark for the benefit of reducing the resolution of the captured image while improving the speed of the readout, smoothing the image, and improving the signal to noise ratio(Stark, paragraphs 0003, 0006, 0009, 0012 and 0111).

Consider claim 9, and as applied to claim 8 above, Moraillon teaches that the second mode corresponds to a high resolution operation as line addressing devices 14 and 15 are connected to all of the lines(figure 3) and the individual pixels are read out and not combined(column 2, lines 61-69). Moraillon does not teach of a first mode.

Stark teaches that the first mode corresponds to a low-resolution operation as pixel signals are combined(paragraphs 0056, 0057, 0085).

Consider claim 10, and as applied to claim 8 above, Moraillon does not explicitly teach a first mode.

Stark further teaches in the first mode(Low resolution mode), effectively connecting at least two photosensors in the group to form a single photosensor(See paragraphs 0056-0057, figure 2.).

Consider claim 13, and as applied to claim 8 above, Moraillon further teaches the apparatus includes a shift register(12, 13) having a plurality of stages(see figure 3), and each of at least two photosensors within a group is associated with a shift register

stage(See figure 3. Vertically adjacent photosensors are associated with the same shift register stage.).

Consider claim 14, and as applied to claim 13 above, Moraillon does not explicitly teach a first mode. However, Moraillon teaches operating the shift register(12, 13) so that, for a plurality of groups of photosensors(i.e. four photosensors), only one shift register stage effectively operates the group(See figure 3. Stage 1 operates the first group, stage 2 operates the second group, and so on.).

6. Claims 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stark(US 2002/0186312) in view of Moraillon(US 4,553,159).

Consider claim 15, Stark teaches:

An imaging apparatus(figures 1-4C), comprising:

an odd output line(Vout1, figure 2) for conveying odd video signals and an even output line(Vout2, figure 2) for conveying even video signals(see figure 2, paragraphs 0052-0055); and

a plurality of groups of photosensors(see figure 4C), the groups being arranged in odd and even positions along a linear array(figure 4C);

the photosensors(38) in each group being connectable in a first mode(low resolution mode) to output a single video signal for the group(paragraph 0087), with the groups in odd positions outputting to the odd video line(In paragraph 0087, Stark

teaches combining the photosensor charges into one sense amplifier. In figure 2, paragraph 0056, Stark teaches that only the first sense amplifier(i.e. the odd readout line) is used to output the combined charge.);

the photosensors in each group being connectable in a second mode(high resolution mode) whereby a first photosensor in the group outputs to the odd video line and a second photosensor in the group outputs to the even video line(figure 2, paragraph 0055); and

means for reading out signals in the second mode(i.e. high resolution mode), wherein signals from adjacent photosensors or groups of photosensors on the first and second output lines overlap over time(Signals are output "generally simultaneously", paragraph 0055.).

However, Stark does not explicitly teach the groups in even positions outputting to the even video line.

Moraillon is similar to Stark in that Moraillon teaches an imaging apparatus(column 2, line 42 through column 3, line 7, see figure 3), the apparatus(figure 3) including a plurality of groups of photosensors(See figure 3 for a plurality of groups of photosensors. Each group contains two green photosensors, two red photosensors, or two blue photosensors.), a first output line(12S), and a second output line(13S), wherein, signals from adjacent photosensors or groups of photosensors on the first and second output lines overlap over time(column 2, lines 61-69).

However, in addition to the teachings of Stark, Moraillon teaches the groups in even positions outputting to the even video line(See figure 3, column 2, line 42 through

column 3, line 7. Moraillon teaches that odd columns of photosensors are output to a first shift register(12), and even columns of photosensors are output to a second shift register(13).).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to output the odd and even groups taught by Stark to separate readout lines as taught by Moraillon for the benefit of creating a more efficient readout scheme in which all the signals are effectively retrieved and defects are eliminated(Moraillon, column 1, lines 20-37).

Consider claim 16, and as applied to claim 15 above, Stark further teaches the first photosensor in each group and the second photosensor in each group being arranged along the linear array(figures 2 and 4C).

Consider claim 17, and as applied to claim 15 above, Stark further teaches the each group of photosensors further includes a third photosensor and a fourth photosensor(figure 4C).

Consider claim 18, and as applied to claim 15 above, Stark further teaches that the photosensors in each group form a two dimensional array(figure 4C).

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Albert H. Cutler whose telephone number is (571)-270-1460. The examiner can normally be reached on Mon-Thu (9:00-5:00).

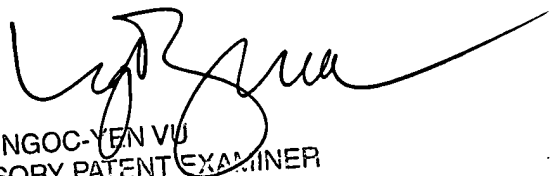
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ngoc-Yen Vu can be reached on (571)-272-7320. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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AC


NGOC-YEN VU
SUPERVISORY PATENT EXAMINER